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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,937	03/02/2004	Weibiao Zhang	TI-36111	4119
23494	7590	06/09/2005	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			CHANG, JOSEPH	
P O BOX 655474, M/S 3999			ART UNIT	
DALLAS, TX 75265			PAPER NUMBER	

2817

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,937

Applicant(s)

ZHANG ET AL.

Examiner

Joseph Chang

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/2/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by
Arcus et al., US Patent Number 5,523,723.

Arcus et al. discloses a gain controlled voltage controlled oscillator (Figure 4), comprising: a current controlled oscillator (302) adapted to provide an output signal (OUT) oscillating at a frequency controllable by controlling a current (21) applied thereto; a first current source (21) providing a first control current (R1, M1, M2) controllable by controlling a voltage (30) applied thereto that has a predetermined range (within loop bandwidth setting); a first current mirror (300) adapted to mirror the control current to the current controlled oscillator; and a second current source (M9, a diode-connected MOS transistor connected in parallel with the first current source) adapted to provide a second control current (I) for mirroring to the current controlled oscillator (302) by the first current mirror when the control voltage is in a low portion of the range.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Murakami, US Patent Number 6,664,861.

Murakami discloses a gain controlled voltage controlled oscillator (Figure 4), comprising: a current controlled oscillator (11, P1-Pm, N1-Nm) adapted to provide an output signal (SOUT) oscillating at a frequency controllable by controlling a current (22,23,24) applied thereto; a first current source (21) providing a first control current (38) controllable by controlling a voltage (VCOIN) applied thereto that has a predetermined range (see Figure 2); a first current mirror (22) adapted to mirror the control current to the current controlled oscillator; and a second current source (26) adapted to provide a second control current for mirroring to the current controlled oscillator (via 23, 24) by the first current mirror when the control voltage is in a low portion of the range.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami, US Patent Number 6,664,861.

As discussed above, Murakami discloses a gain controlled voltage controlled oscillator (Figure 4) including a second current source. However Murakami does not explicitly disclose that the second current source comprises a diode-connected MOS transistor connected in parallel with the first current source. As would have been well known in the art (for example, M9 of Arcus et al.), a diode-connected MOS transistor is used as a current source and Figure 4 shows the second source is connected in parallel with the first current source and all of the active elements are MOS FET transistors, and therefor, it would have been obvious to one of ordinary skill in the art would have recognized that the second current source would have used as a diode-connected MOS transistor because such a configuration would have been simple for a current source.

Allowable Subject Matter

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the best prior art of record, Murakami, taken alone or in combination of other references, does not teach or fairly suggest a specific arrangement of a second current source as set forth in the claim.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

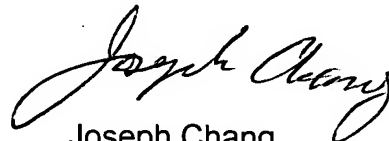
Bhushan et al. discloses a ring oscillator with V-I converter.

Gabillard discloses a voltage to current converter circuit.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is 571 272-1759. The examiner can normally be reached on Mon-Fri 0700-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph Chang
Patent Examiner
Art Unit 2817